Evaluation of Indiana's Early Education Matching Grant Program: 2014-15

Early Childhood Center

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The Early Childhood Center is one of five centers at the Indiana Institute on Disability and Community, the Indiana's University Center for Excellence in Disabilities. The mission of the Early Childhood Center is to advance early education practices that welcome, include, and bring about successful school readiness outcomes for all children. It carries out research and professional development that bridges research to practice in programs serving young children and families.

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Executive Summary

In 2014, Indiana initiated public prekindergarten services for eligible four-year-old children. Early Education Matching Grant (EEMG) Program funds were awarded to 30 eligible high quality early education programs throughout Indiana. Twenty-nine of those programs provided services to an average of 421 children from low-income families over the 2014/15 school year.

As part of this initial prekindergarten effort, Indiana contracted with Indiana University's Early Childhood Center (ECC) to conduct an evaluation of this first year effort. The focus of the evaluation was to look at children's gains in learning, family engagement, and classroom quality. ECC staff evaluated 213 randomly selected children at the beginning and end of the program year using three instruments: the Peabody Picture Vocabulary Test (PPVT), the Bracken School Readiness Assessment-3 (BSRA-3), and the Social Competence and Behavior Evaluation (SCBE). Classroom teachers were asked to complete the SCBE as well as the Indiana Standards Tool for Alternate Reporting of Kindergarten Readiness (ISTAR-KR).

For family engagement, classroom teachers were also asked to complete two measures- one measure that assessed the level of individual family engagement at the beginning and end of the program year, and a second measure that reported on common family involvement activities. Individual families were asked to complete a family engagement measure at the beginning and end of the program rating their level of engagement.

Finally, classroom quality was measured using two measures: the Classroom Assessment Scoring System (CLASS) (Pianta, LaParo & Hamre, 2004) which focuses on teacher-child interactions; and, a timed sampling measure that recorded classroom activities and intentional teaching instances. These observations were completed in 38 classrooms.

Analyses of the pre- and post measures of children's learning found children made significant gains in almost all measures. Children made significant improvements in their receptive language (PPVT) concept development (BSRA), social competence (SCBE), and important school readiness skills (ISTAR-KR). The percentage of children showing developmental delays for each of these measures also decreased, sometimes dramatically. At the start of the EEMG program year, 20% to 39% of the children showed delays in their receptive language (PPVT) and concept development (BSRA, respectively. These numbers were nearly halved by the end of the program (11% and 18%, respectively). These changes in children's developmental status were also captured in the ISTAR-KR measures. At the beginning of the program year, 46% children were delayed in two or more English/Language Arts skill areas, 65% were delayed in two or more Mathematics skills areas, and 64% were delayed in two or more Social-Emotional skill areas. By the end of the program year, these numbers were reduced to 20%, 28%, and 42%, respectively.
In terms of classroom quality, Indiana's EEMG teachers scored above average in the area of Emotional Support, but slightly below average in Classroom Organization and Instructional Support, when compared with national samples and other studies. There were few relationships between CLASS scores and children's learning.

In terms of family engagement, analyses found significant changes in family engagement over the course of the program year. This was true for both family and classroom teacher reports. While state efforts to define and promote evidence-based family engagement are just beginning in Indiana, EEMG programs noted a number of ongoing activities that they do, including regular communication, periodic home/school conferences, and providing opportunities for families to come together during program-wide events.

Introduction

In 2013, the Indiana Legislature set aside $2 million to pilot Indiana's first public-funded early education program, the Early Education Matching Grant (EEMG) program. Its purpose was to provide high quality early learning programs for families of four year olds throughout Indiana with an income less than 100% of the federal poverty level and to evaluate the success of these initial efforts as a prelude to future investments. The funds were made available to eligible early childhood programs throughout Indiana based on a competitive grant application process. Early childhood programs were eligible if they were enrolled in Indiana's Paths to Quality (PTQ) system and were designated as a Level 3 or Level 4 PTQ provider. EEMG funds were allocated for the 2014 and 2015 state fiscal years, with the first programs receiving funds and initiating services beginning in the fall of 2014.

As part of Indiana's initial investment in early education, an evaluation of the EEMG program was included. In June 2014, a contract for this evaluation was awarded to the Early Childhood Center at the Indiana Institute on Disability and Community, Indiana University Bloomington. The purpose of this evaluation was to assess the developmental and learning gains that EEMG-supported children made over the course of the program year. In addition, the evaluation included examining changes in families' engagement in their children's early education, and assessing the quality of the EEMG-funded early childhood programs. Through these assessments of program quality, family engagement, and children's learning and school readiness, the Early Childhood Center (ECC) proposed to provide state decision makers with data on Indiana's first formal efforts to support a high quality early education system.

This report provides an overview of the evaluation of the EEMG-funded efforts conducted during the 2014/15-program year. This report is organized into the following sections:

- PARTICIPANTS, which provides an overview of the programs, classrooms, children, and families who provided and/or received early education services through EEMG funding;
- METHODOLOGY, which outlines the evaluation design, data collection tools and procedures that were administered by ECC;
- FINDINGS, which presents an analysis of the child, family, and program assessment data collected over the course of the year; and
- SUMMARY AND DISCUSSION, which provides a synopsis of key findings and possible implications for further investigation and discussion.

2. EEMG PARTICIPANTS

2.1 Programs Funded by EEMG
Thirty Indiana early childhood programs were awarded contracts to receive EEMG funding and provide early education services to income-eligible children for the 2014/15-program year. Table 1 presents the 30 EEMG-funded programs, including the county they served, full- or half-day services, PTQ level, the number of classroom teachers, and the number of children contracted to serve.

Table 1
EEMG-Funded Programs

Site	County	Full/Half Day	PTQ Level	Number of Teachers	Contracted Total
A Kid's Place	Dubois	Full-Day	4	1	10
Apple Tree Child Development	Delaware	Full-Day	4	1	14
Busy Bees Academy	Bartholomew	Full-Day	3	6	50
Community Action Program of Evansville	Vanderburgh	Full-Day	4	3	24
Carver Day Care	Vanderburgh	Full-Day	3	2	20
Child Study Center/Ball State University	Delaware	Half-Day	4	1	4
Children Inc.	Bartholomew	Full-Day	4	1	11
Civitan Children's Center	Knox	Full-Day	4	1	12
Day Nursery Ft. Harrison	Marion	Full-Day	4	2	20
Day Nursery Northwest	Marion	Full-Day	4	2	22
DayStar Childcare/Englewood Christian	Marion	Full-Day	3	2	15
El Campito Child Development Center	St Joseph	Full-Day	4	1	10
Enterprise Zone Child Development	Vanderburgh	Full-Day	4	2	16
Flanner House Child Development	Marion	Full-Day	4	1	15
Huffer Memorial Children's Center, Inc.	Delaware	Half-Day	4	1	10
Hummingbird Day Care Ministry	Dubois	Full-Day	4	1	25
Imagination Station	LaPorte	Full-Day	4	1	10
Keys for Kids Preschool, Bona Vista	Howard	Full-Day	4	1	2
LaPorte County Family YMCA	LaPorte	Full-Day	4	1	10
Martin Luther King Montessori School	Allen	Full-Day	4	1	6
Milestones Child Development Center	Vanderburgh	Full-Day	3	2	10
Pathfinder Kids Kampus	Huntington	Full-Day	3	1	10
Rainbow's End Childcare Center	Harrison	Full-Day	3	1	15
Right Steps- Downtown	Tippecanoe	Full-Day	4	1	5
Small World Learning Center, Inc.	Vigo	Half-Day	3	1	48
St. Mary's Child Center- Gilliatte Building	Marion	Half-Day	4	4	26
St. Vincent Center for Children & Families	Vanderburgh	Full-Day	4	2	20
TRI-CAP Head Start	Dubois	Full-Day	3	1	10
United Day Care Center of Delaware	Delaware	Full-Day	4	1	14
Southeastern Indiana YMCA	Ripley	Full-Day	4	1	20

The 30 programs proposed funding to support approximately 50 classroom teachers who would serve an estimated 484 four-year old children. The majority of programs proposed offering full day services (N= 26) and were rated at PTQ Level 4 (N=22). Programs were dispersed throughout the state of Indiana with 19 programs located in urban areas and 11 programs in rural areas. Approximately two-thirds of the classrooms included both children who were EEMG and non-EEMG supported children.
As programs initiated services and began their recruitment of eligible children, four programs encountered difficulties that resulted in a small drop in the number of programs, classrooms, and children supported by EEMG. One program was unable to participate in the EEMG Program due to staff and leadership changes and dropped out. Three other programs were unable to recruit their targeted number of children and eliminated three classrooms. The final number of participating programs and classroom teachers for the 2014/15 EEMG year were 29 and 45, respectively.

2.2 Children and Families Served Through EEMG

The EEMG-funded programs originally proposed serving 484 children over the year. Figure 1 provides information on the number of children who began receiving early education services, the number of children who continued to receive services, and the number of children who exited the program for each month in the 2014/15-program year. By the end of September, the 29 programs had recruited and were serving 421 children. Over the course of the year, the 29 EEMG programs recruited a total of 492 children, however, there was a small but steady decline in the number of children served over time. This decline was due to families withdrawing their children and chronic absences. By the end of the academic year, programs served an average of 413 children per month, with 353 of the original 421 children (83.8%) receiving services for the entire program year.

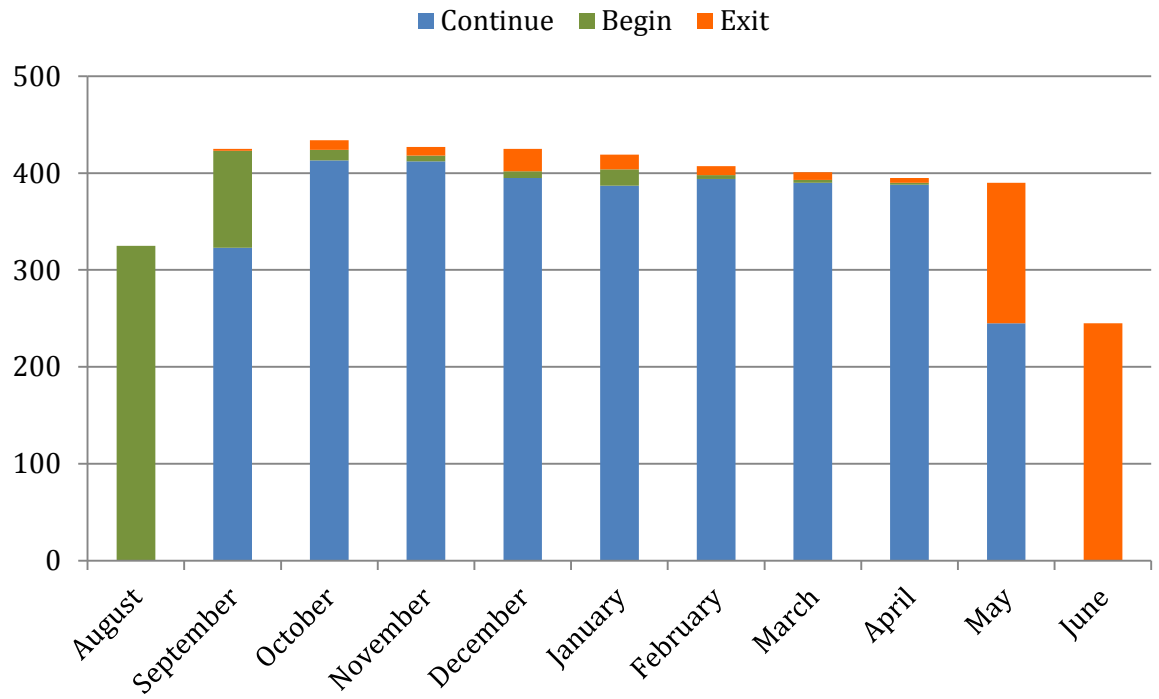

Figure 1. Number of children entering, continuing, and exiting EEMG programs

Demographic information was collected from both children and families through the program's enrollment forms completed by families. Enrollment data was collected for 441 of the 492 children, although some enrollment forms were not completely filled out. In those cases, missing or incomplete data on child and family demographics were removed in calculating the following figures. Table 2 provides demographic information on the children and families receiving EEMG-funded services.

Table 2
Demographic information children & families served by EEMG-funded programs

Demographic	
Gender- Female	50.8%
Child's race:	
• White	46.1%
• African American	25.8%
• Hispanic	14.3%
• 2 or more races	13.1%
• Other	0.7%
Child's primary language:	
• English	88.8%
• Spanish	10.2%
• Other	0.9%
Developmental concerns:	
• Family expressed concerns	16.4%
• IEP & receiving special education	6.3%
Child lives with:	
• Single parent	55.4%
• Both parents	34.5%
• Grandparent/relative	7.4%
• Foster parent/other	2.6%
Primary Caregiver's education:	
• No high school diploma	24.6%
• High school diploma	29.0%
• Some college, no degree	31.0%
• College degree	15.4%
Primary parental employment:	
• Unemployed	48.5%
• Full time employed	29.6%
• Part time/Seasonal	21.9%

Children served by EEMG programs were approximately 50-50 males to females. The majority of children served were non-White (53.9%) and English-speaking (88.8%). Developmental concerns were expressed by 16% of families, with another 6% of children eligible for and receiving special education services.

The majority of children lived in single parent homes (55.4%), with the 75.4% of the primary caregivers having a high school degree and/or some college education. While the majority of the primary caregivers were employed, only 29.6% of the families were fully employed. Almost half (48.5%) were unemployed.

2.3 Sampling for the evaluation

For the purpose of examining the progress in learning and development demonstrated by children in the EEMG programs, a random sample of children and classrooms was conducted. A total of 267 children were selected in 28 of the 29 programs, and in 39 of the 45 classrooms. These children were included in the formal child assessments explained in the next section. Over the course of the program year, 54 children of these children exited the program before the end of the year. The final sample of those for whom results are summarized was 213.

3. Evaluation Methods

We conducted a number of data collection procedures and subsequent analyses. Each set of data collection procedures focused on collecting information about:

1. Children's daily attendance (dosage);
2. Children's learning and development;
3. Family engagement including both families' engagement in their children's education and program practices to promote family engagement;
4. Children's readiness for kindergarten;
5. Classroom activities and the quality of teacher-child interactions

Further information concerning the data collection and analysis procedures and protocols are presented below.

3.1 Assessing children's daily attendance

The Office of Early Childhood and Out of School Learning established minimal attendance rates of 85% for families and programs. Research has shown that high attendance (90% and better) is associated with better learning outcomes (Change, 2008). As a result, we created and administered an online survey to collect weekly attendance data on every child receiving EEMG-funded services. We employed a secure web-based survey tool called Qualtrics. Every teacher in each program had a personal survey link that could be securely accessed via password to record weekly attendance. Each week, programs were asked to log on and complete a new attendance survey in which they would record the date, the number of days in session for that week, and the number of days each child attended. Programs had access to an online attendance report that updated automatically with each weekly entry.

We periodically completed midyear progress reports in which we needed to remind EEMG programs of their attendance-reporting responsibilities. Capturing weekly attendance, logging on to the secure website, and accurately completing the weekly attendance survey was inconsistent for some programs. In cases where attendance data was missing, attendance rates were calculated based on available data.

Another challenge for programs and families was the initial EEMG requirement that families maintain an 85% attendance rate or they risk being asked to leave the program. This 85% attendance rate had the potential of impacting the amount of funds that programs would receive for each child. As a result, when children had poor attendance many programs would ask those families to withdraw and *fill their slot* with a new child. On average, approximately 20 children (18.4) would leave/enter EEMG programs each month from October through April. These turnovers also presented some challenges for both EEMG Program staff and the ECC staff in keeping track of when children entered or exited, and keeping the class roster up-to-date for the weekly attendance survey.

3.2 Assessing children's learning and development

As part of the contract requirements, we administered three child assessment measures: the Peabody Picture Vocabulary Test – Fourth Edition (PPVT 4), the Bracken School Readiness Assessment- Third Edition (BSRA-3), and Social Competence Behavior Evaluation-30 item scale (SCBE-30). The PPVT 4 measures receptive language or vocabulary acquisition, an important indicator of a child's linguistic and cognitive development and readiness for formal school. The

measure is norm-referenced, untimed, and was administered by a trained ECC evaluator to one child at a time, taking approximately 15 minutes per child to complete. The Bracken School Readiness (BSRA-3) tool is also a picture identification test focusing on the foundational concepts for academic readiness, e.g. colors, letters, numbers/counting, sizes/comparisons, and shapes. The BSRA-3 is norm-referenced, untimed, and was administered by a trained ECC evaluator individually to a child, taking 10 – 15 minutes per child to complete. The third instrument, the SCBE-30, is a standardized, *teacher-rating* tool measuring the patterns of social competence, affective expression, and adjustment difficulties based on ongoing knowledge of the child. The classroom teacher was asked to review 30 brief statements describing a child behavior and check an item of a six-point scale indicating the frequency with which the behavior occurred for each individual child. Classroom teachers would take approximately 15 minutes per child to complete the SCBE-30. Both measures were administered at the beginning of the program year (typically September 2014) and again at the end of the program year (typically May 2015)

A team of six experienced early childhood practitioners (two Speech Language Pathologists, two graduate-level early educators, and two bachelors' level early educators/early interventionists) administered the PPVT-4 and the BSRA-3. Prior to conducting the initial assessments, all members of this assessment team received a two-day training on both measures from one of the staff members who was an expert in child assessment (Sally Reed Crawford). After the training, each staff person was asked to administer the two assessment instruments to children at a local preschool program[1] while Ms. Crawford observed and assessed the fidelity of their administration based on a 17-item checklist of required steps/practices. Once all ECC staff were trained and met a criteria of carrying out administration and scoring steps with at least 80% fidelity, each person was provided their own PPVT-4 and BSRA-3 kits and scoring forms and assigned programs/classrooms to initiate the fall assessment phase.

The protocol for completing both the initial/fall and final/spring assessments included the following procedures. A member of our assessment team would contact EEMG program staff to arrange times to come onsite to complete the two child assessments. We would have the list of children that were part of the evaluation project's random sample (N=267). We asked program staff permission to complete assessments in a location in the classroom or program facility that minimized disruptions and allowed for constant supervision from the classroom teacher or other program staff. For Spanish-speaking children, we contracted with a bilingual early educator who assisted us in translating the assessment protocol. Generally, we completed only one assessment in a row with each child to minimize the amount of time the child was asked to sit at any one time. We began each assessment by spending a few minutes in conversation and rapport building with the child prior to administering the test. Once we determined the child was ready, the test was administered. Once the instrument was completed, we asked the child to rejoin his/her classroom and identified the next child to assess. Once all children were assessed with the first instrument, we went back through the list and asked children to join the assessment team member as she administered the second instrument. All assessment team members reported that most children were willing and able to sit for the required time and complete each assessment instrument.

The protocol for completing the SCBE-30 was different since classroom teachers were asked to complete this instrument. We distributed and provided some guidance to 36 EEMG classroom teachers who were responsible for completing the SCBE-30. We provided a training webinar on

[1] Acknowledgement and thanks are expressed to the Ready Set Grow staff and children at Binford and University Elementary Schools, Monroe County Community School Corporation

rating the SCBE-30, and provided technical assistance to classroom teachers as needed. Classroom teachers were asked to complete the SCBE-30 twice for each of the sample children (N=267 at the beginning of the year), once after the first four weeks of class and before the end of the second month; and again in the spring prior to the end of the program year.

Figure 2 provides a timeline of all assessment activities conducted by ECC and EEMG Program staff, including the child assessment described above.

<table>
<tr><th colspan="5"></th><th colspan="3">EEMG Program Staff</th><th colspan="4">ECC Staff</th></tr>
<tr><td>Enrollment</td><td colspan="2">Initial Assessment</td><td colspan="3"></td><td colspan="2">Classroom Observations</td><td></td><td colspan="2">Exit Assessment</td></tr>
<tr><td>Aug</td><td>Sep</td><td>Oct</td><td>Nov</td><td>Dec</td><td>Jan</td><td>Feb</td><td>Mar</td><td>Apr</td><td>May</td><td>Jun</td></tr>
<tr><td>Share Program/ Classroom Info</td><td colspan="2">Distribute & Collect FIQ-P</td><td></td><td></td><td></td><td colspan="2"></td><td></td><td colspan="2">Distribute & Collect FIQ-P</td></tr>
<tr><td>Share Class Lists of Children</td><td colspan="2">Complete FIQ-T</td><td></td><td></td><td></td><td colspan="2"></td><td></td><td colspan="2">Complete FIQ-T</td></tr>
<tr><td>Distribute IU Invitations</td><td colspan="2">Complete SCBE-30</td><td></td><td></td><td></td><td colspan="2"></td><td></td><td colspan="2">Complete SCBE-30</td></tr>
<tr><td></td><td colspan="2">Complete ISTAR-KR</td><td></td><td></td><td></td><td colspan="2"></td><td></td><td colspan="2">Complete ISTAR-KR</td></tr>
<tr><td colspan="11">Complete Weekly Attendance</td></tr>
<tr><td>Determine participants</td><td colspan="2">Complete child assessments</td><td colspan="2"></td><td></td><td colspan="2">Complete Classroom Observations</td><td></td><td colspan="2">Complete 2 assessments</td></tr>
<tr><td>Collect Family Consents</td><td colspan="2">Enter/Scan data</td><td colspan="2"></td><td></td><td colspan="2"></td><td></td><td colspan="2">Enter/Scan data</td></tr>
</table>

Figure 2. Timeline and responsibilities for completing all assessments

3.3 Assessing family engagement practices and outcomes

The state office asked all EEMG Programs to administer the Family Involvement Questionnaire-short form (FIQ, Fantuzzo, et al., 2013) to measure family engagement. The FIQ is a multivariate scale of family engagement that was developed with a strong theoretical foundation and in conjunction with parents of young children in Head Start (Fantuzzo, et al., 2000; Manz, et al., 2004).

The FIQ has three empirically validated categories:

1. **Home-based Engagement** (e.g., working on reading skills at home, discussing learning with child, utilizing community resources);
2. **School-based Engagement** (e.g., volunteering in the classroom, attending field trips, planning classroom activities); and
3. **Home-School Communication** (e.g., attendance at family-teacher conferences, discussing daily routines, discussing difficulties at school).

The measure uses a four-point scale: 1 (Never), 2 (Rarely), 3 (Sometimes), and 4 (Frequently). Use of this measure allowed ECC to not only measure how family engagement as a whole correlates with changes in child outcomes, but also to examine relationships between specific types of family engagement and child outcomes.

EEMG Program staff distributed the FIQ to all families in the fall (October 2014) and again in the spring (May 2015). Assessing family engagement at two points during the course of the school year allowed ECC to look for changes in family engagement over the course of the study. Families would spend 10-15 minutes completing the FIQ.

The state also asked EEMG classroom teachers to complete a modified version of the FIQ to evaluate their perceptions of family engagement. Most previous studies have measured family engagement using either family report or teacher report. Having data from both families and teachers allowed us to compare perceptions of family engagement and to study whose perceptions are more strongly linked to child outcomes.

The teacher measure had two categories instead of three: School-based Engagement and Home-School Communication. The category of Home-based Engagement was not included because teachers were not well positioned to report on what was happening at home. Teachers completed this measure for each child in their classroom once in the fall and again in the spring.

In addition to measuring family and teacher perceptions of family engagement, we also wanted to assess what activities and efforts programs were carrying out to address family engagement. To this end, we used a survey called the Family Involvement Assessment (FIA) designed by Langill, et al. (2013) that is currently being used in Purdue's Paths to QUALITY evaluation study. Program directors rated a series of activities related to communicating and engaging with families based on frequency from Daily to Weekly to Monthly to Quarterly to 1-2 times/year to Never. This survey was completed by program directors one time in the spring via phone interview.

3.4 Assessing children's readiness for kindergarten

As part of the legislation sponsoring the EEMG pilot, Indiana legislators also mandated the use of the ISTAR-KR for assessing children's school readiness. The ISTAR-KR (*Indiana Standards Tool for Alternate Reporting of Kindergarten Readiness*) is a web-based instrument that is derived from

Indiana's Early Learning Standards. It includes skills in five areas of learning: English/Language Arts, Mathematics, Physical Development, Personal Care, and Social-Emotional. ISTAR KR is considered a standards-referenced, curriculum-based teacher rating measure where accuracy is dependent on effective and ongoing classroom teacher observation and documentation.

At the beginning, all EEMG Program staff were provided training about ISTAR-KR. As an initial step, EEMG Program Directors were required to establish ISTAR accounts with the Indiana Department of Education. Once accounts were created, each program, staff, and child were able to access and enter assessment information. Technical assistance on completing the ISTAR-KR was provided by IDOE, ECC and the Office of Early Childhood and After School Learning. Once the information was entered and classroom teachers given password access, the classroom teachers were able to complete the ISTAR-KR for all EEMG-funded children. All classroom teachers were asked to complete the ISTAR-KR two times: first by the end of the program's first six weeks of school (e.g., October 2014), and a second time at the end of the program year (May 2015)

3.5 Assessing classroom activities and teacher-child interaction

We used two classroom observation measures for our evaluation of the EEMG programs: the Classroom Assessment Scoring System (CLASS) (Pianta, LaParo & Hamre, 2004), and a timed observation tool adapted from the Emerging Academic Snapshot (Ritchie, Howes, Kraft-Sayre, & Weiser, 2001). The CLASS focuses on teacher-child interactions that characterize children's classroom experiences. It measures the quality of interactions across three broad **domains** purported to support children's learning and development:

- **Emotional Support** captures how teachers help children develop positive relationships, cultivate enjoyment in learning, provide comfort in the classroom, and foster appropriate levels of independence.
- **Classroom Organization** focuses on how teachers manage the classroom to maximize learning and keep children engaged.
- **Instructional Support** involves how teachers promote children's thinking and problem solving, use feedback to deepen understanding, and support and facilitate the development of more complex language skills.

The CLASS is measured on a scale of 1 to 7. A score of 1 is *inadequate*, a score of 3 is *minimal*, 5 is considered *good*, and 7 is *excellent*. The scores are based on observer ratings of 10 dimensions, which fall under the three domains. Under the domain of Emotional Support, observers note the quality of four dimensions: Positive Climate, Negative Climate, Regard for Student Perspective, and Teacher Sensitivity. The Classroom Organization domain includes three dimensions: Behavior Management, Instructional Learning Formats, and Productivity. The third domain, Instructional Support, includes three dimensions: Concept Development, Quality of Feedback, and Language Modeling.

The *timed observation protocol* is also a classroom observation measure designed to provide a picture of the activities and curriculum the children experience during the classroom morning. It was adapted from the Howe et.al. (2001) instrument to better reflect both the Indiana Foundations to the Academic Standards for Young Children Birth to age 5, and the Indiana Academic Standards for kindergarteners. While the CLASS focuses on the quality of teacher-child interactions, the timed observation protocol focuses on the types of activities or classroom routines children are engaged in (e.g., whole group time, free choice, etc.), and the curriculum focus if and when the classroom

teacher was engaged in any explicit teaching. Table 3 lists out the activities and curriculum dimensions observed and coded during the timed observation protocol.

Table 3
Timed observation activities and curriculum areas

Activities	Curricular Areas
1. Basics (personal care routines, transitions)	1. Arts
2. Free choice	2. Language/Literacy
3. Individual Instruction	3. Mathematics
4. Meals/Snacks	4. Motor (gross and fine)
5. Small Group Instruction	5. Personal Care
6. Whole Group Instruction	6. Science
	7. Social/Emotional
	8. Social Studies

All observers scoring the CLASS were trained and certified by TeachStone as a reliable CLASS observer. All observers scoring the timed observation protocol were internally trained by a master observer (Susan Dixon) over several videotaped observations until all observers were reliable in their observation timing and coding.

Typically, two ECC staff members observed the EEMG classroom all morning through lunchtime (for full day classrooms), or all morning or all afternoon (for half-day programs). Both observers arrived prior to children's arrival to insure observations began as children entered or began the early education part of the day The CLASS observation protocol is comprised of 20 minutes cycles, where the observer watches and records teacher-child interactions and then codes and scores for 10 minutes before beginning a new cycle. This cycle is repeated 4-6 times. This 30-minute cycle was repeated for the majority of the whole observation time, typically including 4-6 individual cycles. CLASS observers did not include outside activities such as outdoor recess and gross motor times in their formal observations. All other activities were coded.

The timed observation protocol is a time sampling procedure that was completed by observing a randomly selected sample of five children. In a time sampling procedure, we would observe the first child for 20 seconds and determine both the primary activity and, if there was explicit teaching occurring, the curriculum focus of that teaching. Then, for the next 40 seconds, we would record our observations. Once the 40-second period for recording our observation ended, we would observe the child for another 20 seconds, repeating this 60-second cycle throughout the time we were in the classroom. Each child would be observed for a total of five minutes (5 60-second cycles) before rotating to the next child on our list. The timed observation protocol was implemented through the use of iPads and a database application called FileMaker Go. The FileMaker Go app would make a sound, vibrate and display a screen to prompt the observer to observe or record. The recording screen provided simple checkboxes for the observer to record the activity and curriculum area(s) observed.

3.6 Analyses of EEMG Program practices and possible impact

Multiple sets of analyses were conducted to examine change in children's learning and family engagement, to determine if there were significant variations among classrooms and programs, and assess if there were significant relationships among important demographic and program

characteristics and children's learning. In the first set, the 267 children randomly selected at the beginning of the program year (N=267), were tracked for the entire program year, and all child assessment, family assessment, classroom assessment, and demographic data were compiled into an Excel file. By the end of the program year, 54 children had left their EEMG program for a final sample size of 213 children. This Excel file (sans all identifying information concerning, children, teachers, and programs) was provided to Indiana University's Indiana Statistical Consulting Center for analyses. The Indiana Statistical Consulting Center (ISCC) first conducted a *Repeated Measures Analysis of Variance* (RMA) to determine if there were significant changes between the pre and post scores on children's learning and school readiness and family engagement. This Repeated Measures ANOVA employed multi-level modeling procedures to account for differences in both programs and classrooms. It is important to note that there was no control or comparison group, nor were children randomly assigned to different programs and classrooms. Because of this limitation in our evaluation, we cannot conclusively determine if any significant changes in children's learning that occurred were due to the efforts of the EEMG programs—this impact may only be inferred.

Following the Repeated Measures ANOVA, the ISCC then conducted a series of *regression-based* analyses using an Analysis of Covariance (ANCOVA) with multilevel modeling to account for possible differences among programs and classrooms. An ANCOVA is a statistical procedure that determines if there are any significant relationships between independent variables, such child demographics (race, gender), family engagement, program dimensions (rural/urban, level 3 or 4), and/or classroom qualities (CLASS, activities) and children's learning (test scores). These analyses help to determine if there are variables (e.g., higher CLASS scores) contributing to and/or impacting children's post-assessment scores. For example, current beliefs and previous research would suggest that higher CLASS scores positively contribute to children's learning; that full-day programs should have a greater impact on children's learning than half-day programs.

4. Results

4.1 Average daily attendance

Attendance was tracked for most children enrolled in EEMG, including those that entered late or exited early. Based on the attendance data collected for 413 of the 492 children, the average attendance rate was 81.5%. Table 4 shows average daily attendance across a number of child, family, and program variables.

Statistical comparisons were not made to determine if any of the observed differences are significant. There are some differences worth noting. Attendance between children who attended full year (86.2%) was much greater than children who attended for part of the year (68.3%), reflecting in part the requirements that children attend at least 85% of the time or risk expulsion. African American children tended to attend less often (79.5%) than White (84.7%) or Hispanic children (85.2%). Children in half-day programs attended less often (73.0%) than children in full-day programs (82.8%), but this may be due to small numbers of children in half-day programs and poor attendance data from one of the largest programs.

Table 4
Average attendance across children, families, & programs

Comparisons	Attendance	Number of Children
Average across all children	81.5%	413
Assessment Sample	88.1%	215
Child Demographics		
• Attended EEMG full year	86.2%	304
• Attended EEMG partial year	68.3%	109
• Female	84.1%	190
• Male	82.3%	192
• Hispanic/Latino	85.2%	59
• White	84.7%	158
• 2 or More Races	83.0%	49
• Black/African American	79.5%	99
Primary Caregiver Demographics		
• College degree or certificate	85.1%	50
• Some college	84.0%	107
• High school diploma	84.0%	100
• No high school diploma	80.3%	89
• Full Time employment	86.3%	104
• Seasonal employment	84.4%	6
• Part Time employment	82.3%	73
• Unemployed	81.4%	183
Program Dimensions		
• PTQ Level 3	83.6%	146
• PTQ Level 4	80.3%	267
• Full-day program	82.8%	357
• Half-day program	73.0%	56
• Rural	85.7%	153
• Urban	79.0%	260

4.2 Changes in children's learning

A sample of 213 children was assessed at the beginning and end of the EEMG Program year with three instruments: the Peabody Picture Vocabulary Test-4th Edition (PPVT-4), Bracken School Readiness Assessment-3 (BSRA-3) and the Social Competence and Behavior Evaluation-30 items (SCBE-30). Comparing pre- and post-scores on these three instruments were used to measure changes in the children's learning and school readiness skills over the program year. A one-way repeated measures ANOVA with multi-level modeling to account for differences across programs

and classrooms was conducted to determine if the changes between pre- and post-scores on the three tests were significant. Table 5 presents a summary of the analyses.

Table 5
Pre and post measures of children's learning in EEMG across programs

Measure	Mean-Pre	Mean-Post	F Values	P value
PPVT-4 (Standards Scores)	97.44	102.99	F (1,186)=33.591	< .000*
BSRA-3 (Standards Scores)	90.92	98.48	F (1,186)=92.635	< .000*
SCBE 30- Anger	20.48	21.46	F (1, 178)=1.824	.197
SCBE 30- Anxiety	20.61	18.99	F (1,178)=9.203	.003*
SCBE 30- Social Competence	38.57	42.01	F (1, 178)=26.418	.001*

*Significant differences at *p<. 01*

On average, children in EEMG programs made positive significant gains in almost all areas of learning as measured by the three instruments. Children experienced a significant increase in their receptive language/vocabulary development as measured by the PPVT-4; a significant increase in their concept learning, as measured by the BSRA-3; and significant growth in their social competence and a significant decrease in observed anxiety, as measured by the SCBE 30. The one exception is the slight increase in children's observed anger-related behaviors (SCBE 30-Anger subscale), which was not statistically significant.

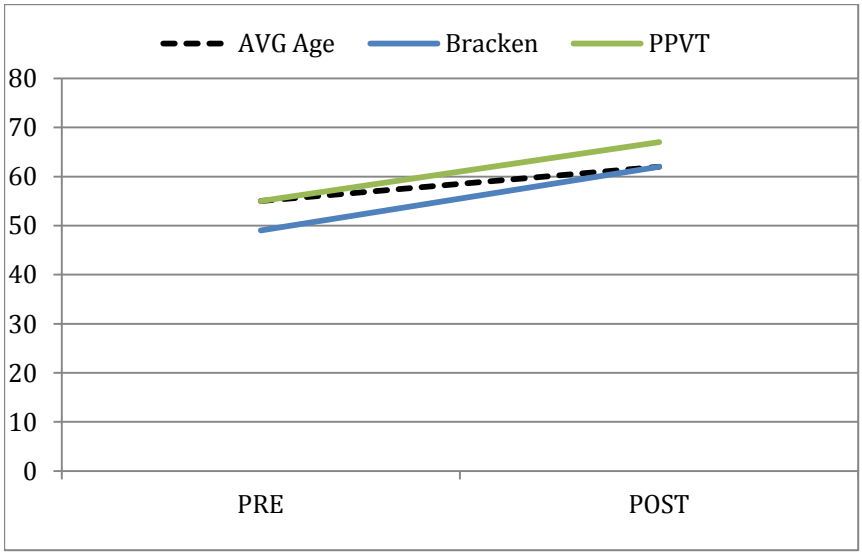

Figure 3. Average learning gains in months

Both the PPVT-4 and the BSRA-3 scores were converted to age-equivalent scores. This allowed us to see how well children are performing based on their chronological age. Figure 3 uses these scores to highlight children's improvement based on the BSRA-3. This figure includes three lines: the black dashed line represents children's average chronological ages at pre- and post-assessment; and the bottom blue or parallel line shows the average pre/post age equivalent scores on the BSRA-3. As can be seen, children were delayed, on average, at the start of the EEMG program, and made gains that put them near age level, exceeding typical rates of learning and development.

Another way to present this data is to identify the number of children who may have started out behind at the beginning of the program year, and the number of children who ended the program year at or above age level. Tables 6 and 7 show the number of children by their developmental status at the initial/final assessment periods for both the PPVT-4 and the BSRA-3, respectively. At the beginning of the year, 42 children (19.7%) showed delays on the PPVT-4. The majority of children were at age level (67.1% and above (21.1%). By the end of the year, the number of children with delays had decreased to 25 children; and the majority of children were able to maintain age level or better progress over the year (88.7%).

Table 6
Developmental status at initial and final assessment (PPVT-4)

		Final Assessment			
		Delayed	Age Level	Advanced	*Total*
Initial Assessment	Delayed	17	24	1	*42*
	Age Level	7	106	28	*141*
	Advanced	1	13	16	*30*
	Total	25	143	*45*	*213*

In terms of children's concept development, Table 7 provides results for the BSRA-3. At the beginning of the year, 84 children (39.4%) started below age level in concept development. By the end of the program year, less than half of that number of children (N=39), or 18.3% of all children, were delayed at the end of the program year. Again, the majority of children were able to maintain or advance their concept development (59.6%).

Table 7
Developmental status at initial and final assessment (BSRA-3)

		Final Assessment			
		Delayed	Age Level	Advanced	*Total*
Initial Assessment	Delayed	37	46	1	*84*
	Age Level	2	86	20	*108*
	Advanced	0	5	16	*21*
	Total	*39*	*137*	*37*	*213*

It should be noted in both Tables 6 and 7 that there were children who began at Age Level or Advanced but declined over the year. It appears that while children made significant gains over the year, some children's rate of gain did not enable them to maintain their original development status.

Figure 4 illustrates the overall improvement children made on the PPVT-4 and the BSRA-3 during their time in EEMG. While 12-18% of the children continued to experience delays (including children who were delayed at their final assessment) in their development at the end of the EEMG program, the majority of children were scoring at or above age level, with 25-32% of children experiencing increases in their developmental status (improving to age level or above age level).

A series of regression analyses, Analysis of Covariance with multilevel modeling, were conducted to determine if there were any significant differences among children and programs based on the PPVT-4, BSRA-3 and SCBE-30. Comparisons were made on children's race, gender, and attendance; the primary caregiver's employment status and education status; and program dimensions such as rural/urban, PTQ level, and full day/half day services. Only two significant differences were found:

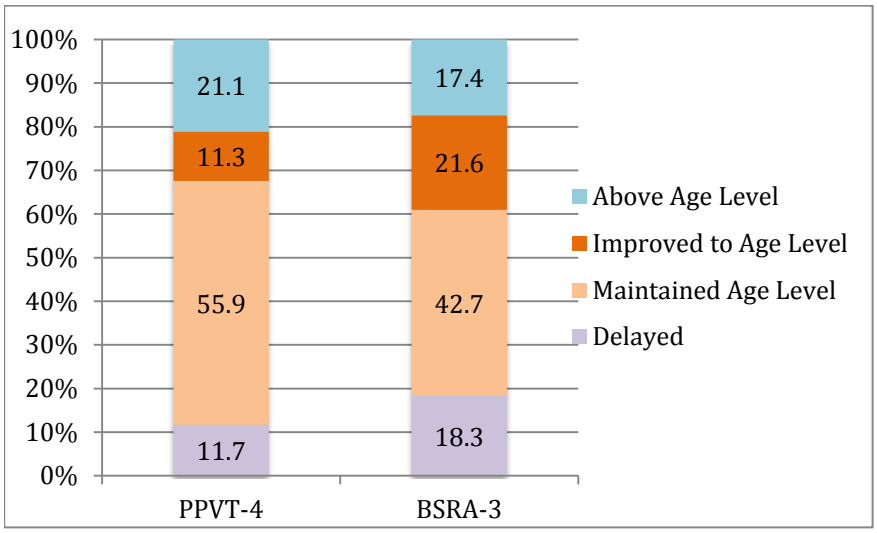

Figure 4. Percentage of children experiencing developmental gains by test

1. There were significant differences among children based on race and their gains on the PPVT-4, $F(3,90.66)=3.18$, $p < 0.05$. Hispanic children made significantly fewer gains on the PPVT-4 than other children. This finding may be due to the higher proportion of English language learners among the Hispanic population in the EEMG programs.
2. There were significant differences among children based on race and their gains on the SCBE 30- Anger subscale, $F(3,90.66)=3.18$, $p < 0.05$. Classroom teachers reported an increase in anger-related behaviors for African American and Multi-Racial children.

No significant differences were found between PTQ Level 3 and Level 4 programs; nor were there significant differences found between full and half-day programs. One observation for possibly explaining why no differences were observed among programs was the requirement that all lead classroom teachers have bachelor's degrees. This requirement significantly extends current PTQ Level 3 standards.

IU personnel conducted the PPVT and Bracken assessments and did not share this data with classroom teachers. Therefore, these measures should not have influenced teachers' reporting on the ISTAR-KR.

4.3 Changes in children's school readiness

Classroom teachers in all programs completed the ISTAR-KR, a teacher rating measure of children's learning and development reflective of Indiana's early learning standards. This measurement tool represents this evaluation's effort to determine children's school readiness for kindergarten. Entry and exit information was entered in the ISTAR-KR online system for 323 children, of which 298 were present for the entire program year. Statistical analyses were restricted to our study sample of 215 children, of which the ISTAR-KR was completed for 196 children. A one-way repeated measures ANOVA with multi-level modeling to account for differences across programs and classrooms was conducted to determine if the changes between pre- and post-scores for three of the five ISTAR-KR domains (English/Language Arts, Mathematics, and Social-Emotion) were significant. Table 8 presents a summary of the analyses.

Table 8
Pre and post measures of the ISTAR-KR- English/Language Arts, Mathematics, and Social-Emotional

Measure	Mean-Pre	Mean-Post	F Values	P value
English/Language Arts	48.97	61.87	F (1,170)=646.677	< .000*
Mathematics	46.82	60.33	F (1,170)=667.664	< .000*
Social-Emotional	48.68	55.64	F (1,170)=212.194	< .000*

*Significant differences at $p < .001$

On average, children in EEMG programs made positive significant gains in all three domains, including the Social-Emotional domain, which does not measure many skills past 4-5 years of age. On average, children made approximately 13 months of gains in the English/Language Arts and Math domains. This rate of learning occurred over an 8-month time frame. Figure 5 illustrates these significant gains, and includes progress data for all 298 children. Much like Figure 3, the black dashed line represents children's average chronological ages at pre- and post-measurement. The top blue or solid line shows the average pre/post gains for English Language Arts, the parallel green lines show gains in Math, and the dashed red line show gains in Social-Emotional. On average, children entered the EEMG program 6-9 months behind their same-age peers in all three domains. Over the course of the program year, children on average caught up to age level in the two academic domains, recalling that the Social-Emotional domain does not include advanced skills to adequately measure children five years of age and above.

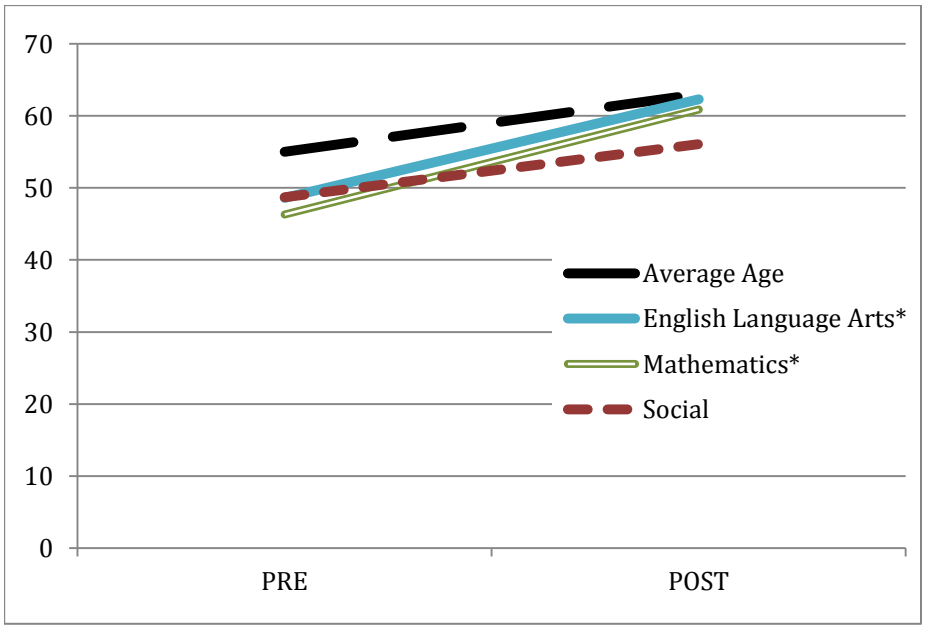

Figure 5. Gains in three domains of the ISTAR-KR

The ISTAR-KR data was converted to determine which children were demonstrating age-appropriate skills and which may be delayed or above age level in their performance. For the Personal Care, Physical Development, and Social-Emotional domains, it would be expected that all children would demonstrate all skills in these domains because their chronological age exceeds the age range measured by these three domains. Children were identified as Delayed in any one domain if they were missing skills for their age in 3 or more the threads under each domain.

Figure 6 highlights the school readiness status of all 323 children for whom there were initial and final measurements. By and large, the majority of children leaving EEMG demonstrated age appropriate (or better) school readiness skills in all five domains: 80% of children in English/Language Arts, 72% in Math, 88% in Personal Care, 71% in Physical, and 58% of children in Social-Emotional. In all domains, children in EEMG experienced significant changes in their developmental status, with 21-35% of children improving to age level across the five domains.

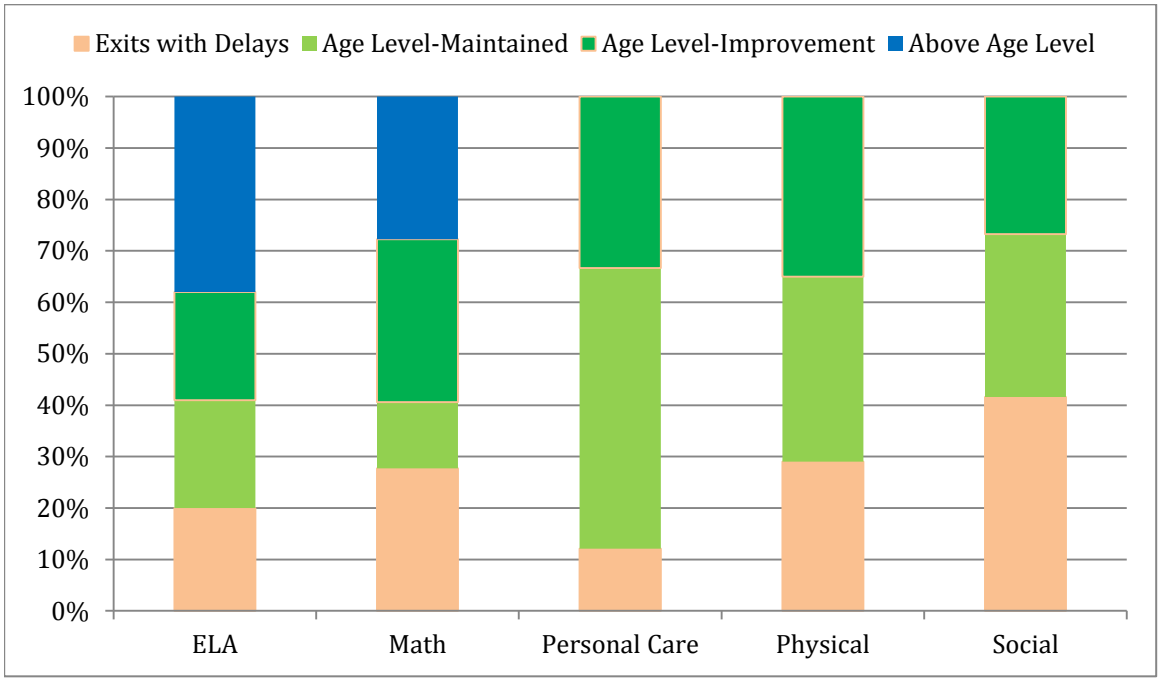

Figure 6. School readiness status of EEMG children across the five domains

There were some children, however, who remained below age level and were lacking school readiness skills prior to kindergarten. Surprisingly, 42% of children did not demonstrate all of the social-emotional skills included in ISTAR-KR. We have no immediate explanations for why such a large percentage of children were scored as missing so many social-emotional skills. Possible explanations could be the norming of the domain items, the clarity of the items in insuring reliable responses from classroom teachers, and/or the skill level of classroom teachers in noting the presence of these skills.

Table 9 presents the skills that were missing for children exiting with delays in ISTAR KR. The bolded skills reflect critical problem solving/self-regulation skills that will be necessary for success in kindergarten and later school years.

Table 9
10 most frequently missing skills among children with delays in ISTAR-KR

Domain	Skill Area	Skill
Social	Problem solving	**Finds alternative strategies/solutions**
Social	Approaches to learning	**Applies creativity to activities**
ELA	Comprehends details	Retells familiar stories
Social	Responsibility	**Applies rules to situations**
Math	Sorting & classifying	Sorts and patterns by one attribute
Math	Counting & quantity	Names and orders quantities
Social	Manages emotions	**Uses strategies to manage emotions**
ELA	Receptive language	Follows unfamiliar directions
Social	Sense of self	Demonstrates respect for others/self
Physical	Sensory Integration	**Applies strategy to regulate sensory input**

The same series of regression analyses, Analysis of Covariance with multilevel modeling, were conducted for these measures to determine if there were any significant differences among children and programs. There were very few differences found among children. Comparisons were made across gender, race, location, and family demographics. The only findings in which significant difference were found were these:

- Girls made significantly more gains in Social-Emotional skills as compared to boys, $F(1,71.73)=4.86$, $p< .05$).

4.4 Changes in family engagement

There were a total of 353 families that completed the entire year in an EEMG program. Of these families, 260 completed both fall and spring family engagement measures. This is a family response rate of 74%. Teachers completed both fall and spring FIQs for 327 families. This is a teacher response rate of 93%. For the study sample of 215 children and families, 194 families (90.2%) completed both measures and teachers completed the measures for 214 families (99.5%).

A series of Repeated Measures ANOVA with multilevel modeling to account for possible program and classroom differences were conducted with the study sample. The results from these statistical analyses are presented in Table 10. The analyses are presented for each of the three family engagement subscales: Home-Based Engagement, School-Based Engagement, and Home-School Communication. The teacher-report version does not include the Home-Based Engagement subscale.

Family engagement, as reported by both families and teachers, significantly increased from fall to spring in all measures except for family-reported Home-Based Engagement. Given that the scale is a 4-point scale, families reported a high level of engagement at home with their children at the beginning of the program, and maintained that level throughout the program year.

Table 10
Pre and post measures of family engagement as reported by families and teachers

Family Reported Engagement	Mean-Pre	Mean-Post	F Values	P value
Home-based Engagement	3.61	3.63	F (1,133)=. 000	.998
School-based Engagement	1.80	2.06	F (1, 132)=9.165	.003*
Home-School Communication	2.98	3.35	F (1, 133)=23.146	< .000*

Teacher Reported Engagement	Mean-Pre	Mean-Post	F Values	P value
School-based Engagement	1.45	1.70	F (1, 180)=28.032	< .000*
Home-School Communication	2.35	2.81	F (1, 187)=61.57	< .000*

Figure 7 highlights the changes made in overall family engagement. This data suggests that family engagement seems to change over time and that programs are finding ways to engage with families throughout the school year. The finding that Home-Based Engagement was rated highly and did not change suggests that families perceive themselves as engaging at a high level already with their children at home and that being part of EEMG did not impact this. The fact that families report being highly engaged with their children at home is positive. It is important to note, however, that there may be an element of social desirability bias reflected here. This subscale was most directly related to family behavior and families may have wanted to be perceived favorably by the program and the researchers.

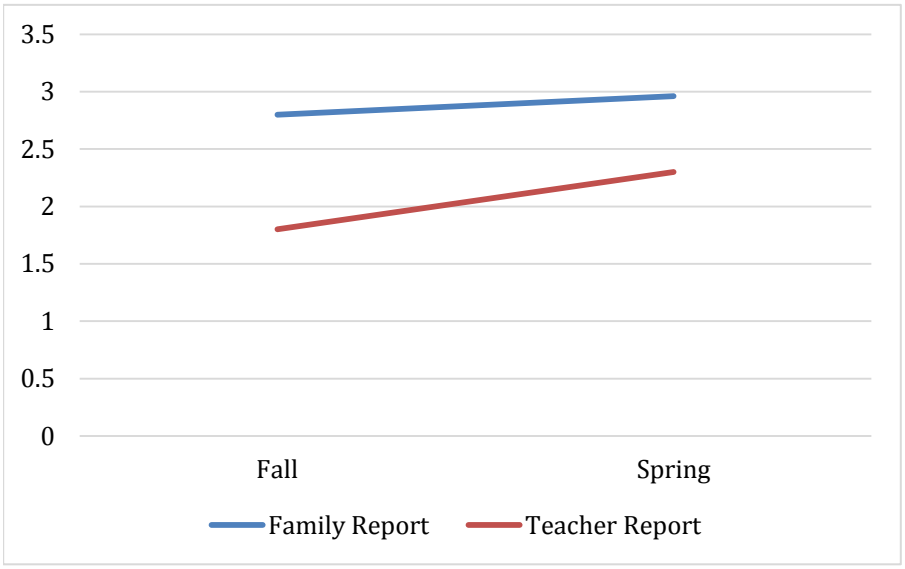

Figure 7. Family & teacher reports of overall family engagement from fall to spring

Another finding of interest is that teacher reports of family engagement were consistently lower than family reports of family engagement (Figure 8). This data suggests that families perceive themselves to be more engaged than do teachers. It is possible that families tend to over-report given the negative social stigma around being disengaged. In fact, some families wrote comments on the measure about feeling bad for not having been more involved and offering reasons. Alternatively, teachers may not perceive family engagement accurately, given that they were

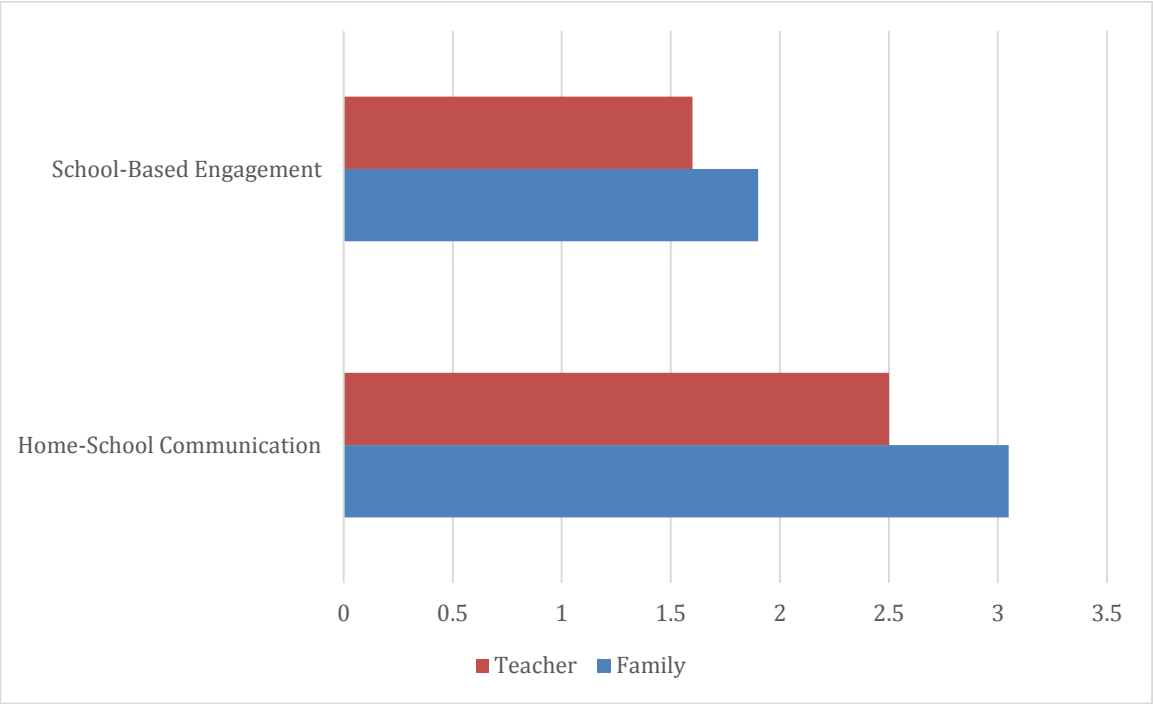

Figure 8. Comparison of teacher and family reports across two family engagement subscales

completing this measure for all of the children in their classroom. We are unable to know, based on the data, why there were differences between family and teacher reports.

Another finding reported in Table 10 is that both families and teachers reported that School-Based Engagement was the least frequently occurring subscale. While both families and teachers reported significantly increased school-based engagement from fall to spring, families still only reported an average of 1.9 out of 4 (with a 2 = Rarely); and teachers reported an average of 1.6. Clearly programs are struggling to engage with families in the school setting.

Programs were asked to complete a third survey, the Family Involvement Assessment (FIA), which was intended to provide information about what activities programs were using to engage families. The FIA was completed by 28 program directors. Some of the most common activities are reflected in Figure 9. Although this measure provided data on activities that programs frequently used to attempt to engage families, a limitation of this measure is that there is no way to know the efficacy of these techniques. The FIA does not measure quality of implementation or outcomes.
A Repeated Measures ANOVA was conducted to determine if there were significant differences in the family engagement improvement among children and programs. These analyses examined differences among children's gender and race, among primary caregiver's education and employment status, and among programs based on full/half-day services, PTQ level, and rural/urban locations. We found the following:

1. There were no differences among family-reported levels of Home-School Communication, Home-Based Engagement, or School-Based Engagement.
2. There were significant differences in teacher-reported levels of Home-School Communication among primary caregiver based on their educational status, $F(3,142) = 3.22$, $p < .05$. Classroom teachers reported less Home-School Communication improvement among primary caregivers without a high school degree.

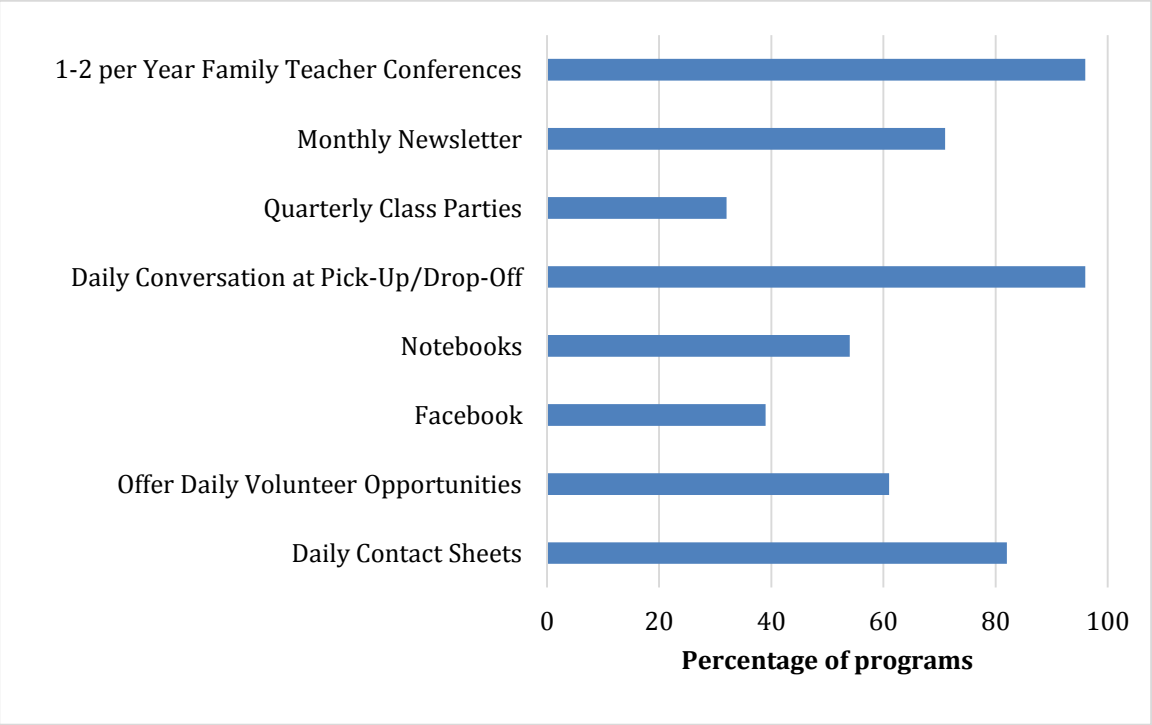

Figure 9. Percentage of program directors reporting on the use of common program-level family engagement activities.

3. There were significant differences in teacher-reported levels of School-Based Engagement among primary caregivers based on their employment status, $F(3,151.1) = 4.71$, $p < .05$. Classroom teachers reported less School-Based Engagement improvement among seasonally employed primary caregivers.

A one-way Analysis of Covariance with multilevel modeling was conducted to determine if statistically significant relationships exist between our family engagement measures (post-scores) and children's learning. Only one significant relationship was found between family-reported levels of Home-Based Engagement and improvement on the ISTAR-KR Mathematics domain, $F(1, 69.2) = 6.83$, $p < .05$. Lower levels of Home-Based Engagement were associated with higher gains in math skills.

4.5 Classroom activities and the quality of interactions

Classrooms were assessed with two measures: the Classroom Assessment Scoring System (CLASS) and a timed observation protocol to measure the frequency of common classroom activities and explicit teaching experienced by children. Figure 10 presents a box-and-whiskers plot of CLASS scores for the three domains: Emotional Support, Classroom Organization and Instructional Support. Classrooms receive scores from 1 to 7. On average, the 38 EEMG classrooms received a score of 5.64 on Emotional Support, with scores ranging from a low of 3.13 to a high of 7.00. The classrooms scored an average of 4.97 for Classroom Organization with a low of 2.67 and a high of 6.67. Finally, the 38 classrooms observed scored an average of 2.32 on the Instructional Support domain, with a low of 1.28 and a high of 5.17.

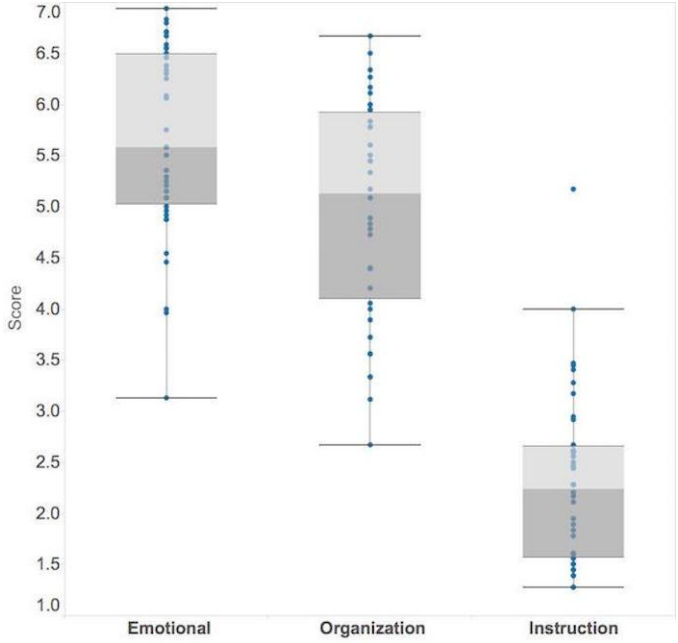

Figure 10. Range and mean scores on the three CLASS subscales by EEMG classrooms

Figure 11 provides a breakdown of the average scores classrooms received on the 10 CLASS dimensions. Teachers were generally emotionally supportive of the children, showing positive classroom climates with a presence of warm, respectful connections; an absence of expressed negativity; an awareness of and responsiveness to children's needs; and an emphasis on children's interests and growth in responsibility. Classroom organization skills were also good, with the strengths being behavior management and productivity. Instructional Learning Formats, another dimension within Classroom Organization, was weak, on average. This means that the teachers' skills in effectively facilitating lessons, fostering student interest and having clear learning objectives was not observed as often.

The 38 classroom teachers demonstrated the weakest skills in dimensions that measured their ability to promote deeper understanding of ideas and facilitate language growth, those dimensions related to Instructional Support. This domain does not measure *whether* content areas are being addressed, but *how*. The low score in Concept Development indicates a lack of frequency, depth and duration in the use of instructional discussions and activities that ask children to

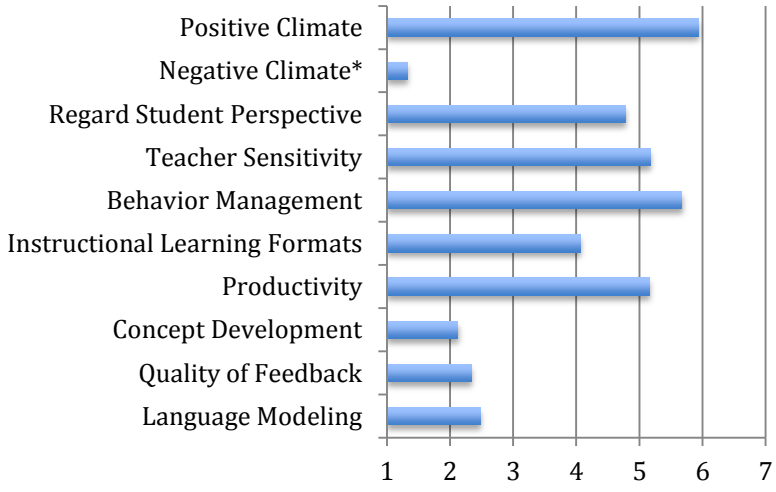

Figure 11. Average scores on the 10 CLASS dimensions by EEMG

think deeply about ideas and connect them with what they already know and to their own experiences. The Quality of Feedback dimension measures to what extent teachers are prompting thought processes by asking children to explain their thinking, using follow-up questions, offering hints and expanding/clarifying information. The low score on this domain means that teachers are not providing as much feedback to children that increases their learning and encourages their active participation. And finally, the extent to which teachers used language in frequent conversations, open-ended questioning, and elaboration of ideas is reflected by low scores in the Language Modeling dimension.

How well do EEMG classrooms relate to other prekindergarten programs in Indiana and around the country? Figure 12 presents CLASS Scores for EEMG along with other early childhood programs in and out of Indiana, including the Boston Public Schools (Weiland, Ulvestad, Sachs & Yoshikawa (2013), National Head Start programs (http://eclkc.ohs.acf.hhs.gov/hslc/hs/sr/class), and a sample of 81 Indiana early childhood programs (Conn-Powers, Cross, and Dixon, 2013). Indiana's EEMG classrooms scored lower than all other programs in all three domains with two exceptions—Emotional Support and Classroom Organization scores were relatively comparable to the Boston Public Schools data. The largest observed differences are in the Instructional Support domain, with Indiana's EEMG programs scoring lower on average than all three data sources, but particularly below Boston Public Schools (4.30 versus 2.23). This may be notable, as research conducted with the BPS has shown significant impact on children's learning.

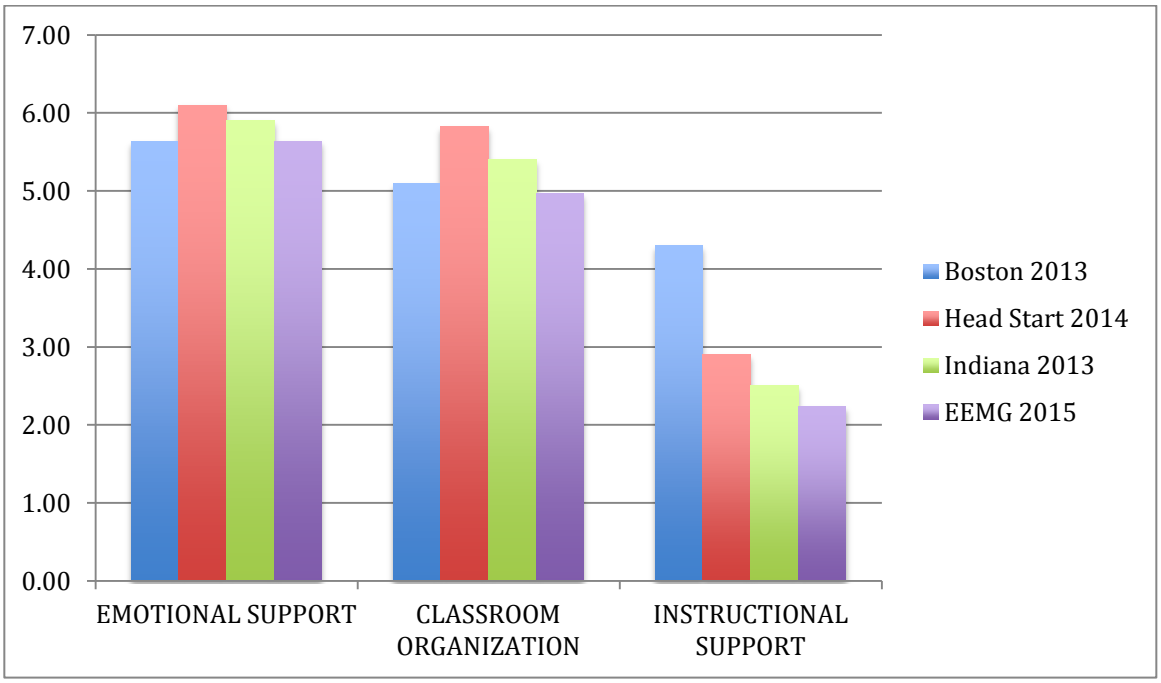

Figure 12. Comparison of CLASS scores among state and national preschool programs

The results of our second classroom observation measure, a timed observation of classroom activities and teaching, are presented below. Figure 13 illustrates the percent of time the children in EEMG classrooms spent in various activities during their time at school. Comparison figures are from a study conducted with 2,751 children enrolled in classrooms throughout several states with public-funded prekindergarten (Chien et.al., 2010). The two most frequent activities for EEMG children were Whole Group Instruction (31.2%) and Free Choice (30.3%) times. The least frequently occurring activity was Individual Work (5.5%). This data is comparable with the national data collected by Chien and her colleagues (2010), with the exception of time spent on

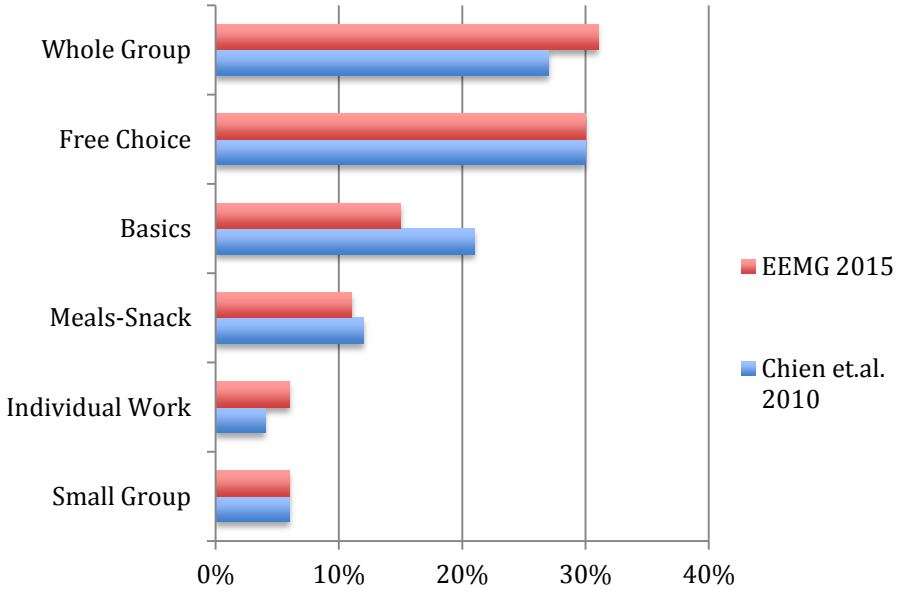

Figure 13. Percentage of time children spent in common classroom activities

Basics (which includes personal care routines, transitions, and waiting for activities to begin); EEMG programs spent less time on Basics compared to national data.

The timed observation protocol also included the amount of time during those activities in which teachers provided some form of teaching or instruction and the curricular content taught. Figure 14 shows the results from the timed observation. For 48.9% of the observations, teachers were engaged in observation, supervision, and/or classroom management where adult-led, direct instruction was occurring for the observed child (*Classroom Management*). While this may seem high, earlier studies by Early and her colleagues (2010) found similar results (44%) when observing public-funded prekindergarten classrooms in multiple states. Conn-Powers, Cross, and Dixon (2013) replicated many elements of the Early study with 81 Indiana early childhood programs and found that classroom management with little direct teaching occurred 20.8% of the time. It should be noted that the

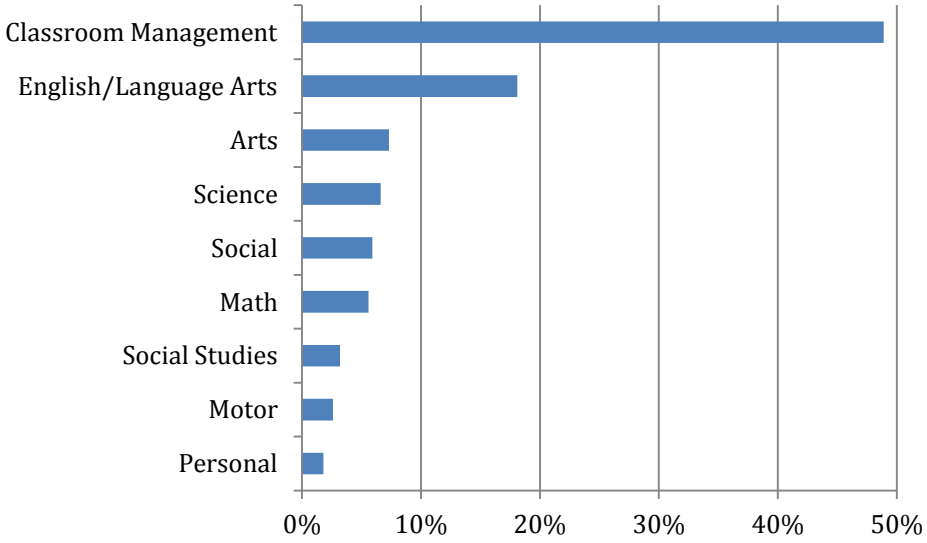

Figure 14. Percentage of time instruction was observed and the curriculum content

protocols used in these earlier studies allowed for greater numbers of instances to be counted as instruction. For this evaluation, we took a more restrictive definition, measuring only observed intentional teaching behaviors on the part of the classroom teacher.

For the 51.1% of the time that instruction was observed, curriculum content focused primarily on early language and literacy skills (18.1%). Personal care skills (hand washing, toileting, dressing) received the least amount of instruction (1.8%).

Additional analyses combined the classroom activity data with the classroom instructional observations to get a sense of the amount of teaching and curriculum focus that occurred within each activity. Figure 15 presents the results from these descriptive analyses. The following curriculum domains were combined to simplify the chart: Personal Care and Motor, Social Studies and Social-Emotional. There was considerable variation among classroom activities and the type/focus of teachers' interactions with children. Not unexpectedly, teacher-led instructional times (Whole and Small Group Work) had the highest observed instances of intentional teaching and

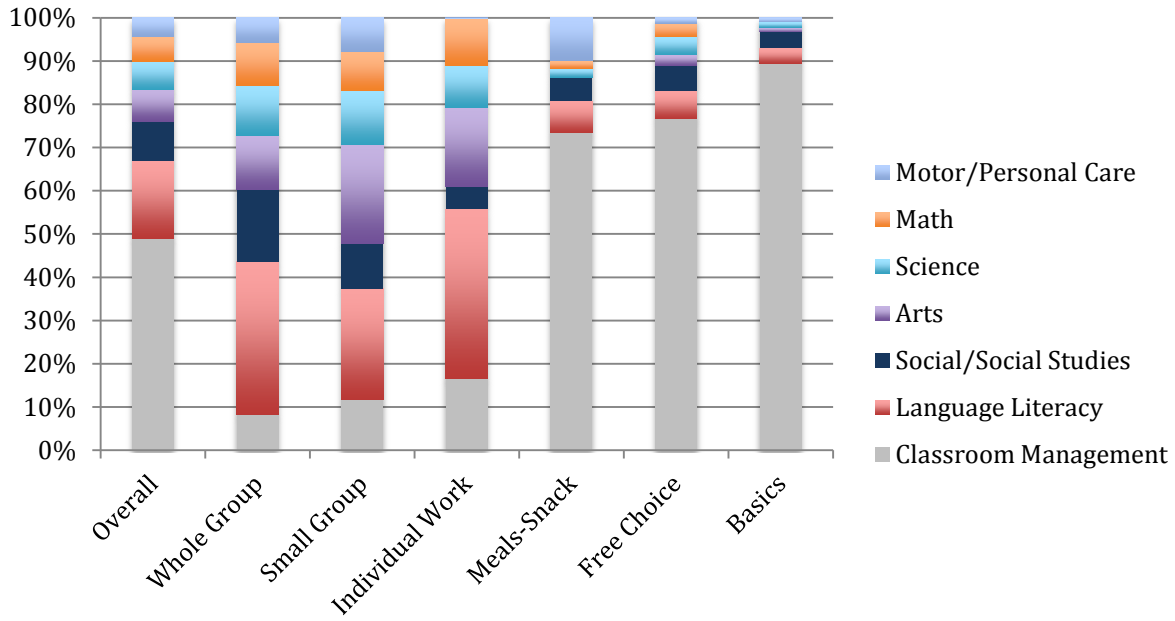

Figure 15. Percentage of time providing instruction by curriculum content for all classroom activities

lowest observed instances of classroom management. Meal times, free choice, and basics had the lowest observed instances of direct intentional teaching. On average, EEMG classrooms appeared to organize most of their instruction to take place during teacher-led activities, with other times more child-directed and with less direct teacher involvement and more observation.

A one-way Analysis of Covariance was conducted to determine if statistically significant relationships exist between our classroom quality measures and impact on children's learning. A few significant relationships were found:

1. There was a significant relationships between CLASS Emotional Support scores and children's gains as measured by the ISTAR-KR English/Language Arts, $F(1, 85) = 4.84$, $p < .05$. Children made higher gains in English/Language Arts skills in classrooms that scored *lower* in Emotional Support.
2. There was a significant relationship between CLASS Emotional Support scores and teacher ratings of children's Anger on the SCBE, $F(1, 93) = 4.64$, $p < .05$. Teachers reported higher instances of anger-related behaviors in classrooms that scored *higher* in Emotional Support.
3. There was a significant relationship between CLASS Classroom Organization scores and teacher ratings of children's Anger on the SCBE, $F(1, 93) = 5.55$, $p < .05$. Teachers reported lowers instances of anger-related behaviors in classrooms that scored *higher* in Classroom Organization.
4. There was a significant relationship between the proportion of time in which children were engaged in instructional activities (whole group, small group, and individual instruction) and the English/Language Arts domain of ISTAR-KR, $F(1, 80) = 5.02$, $p<.05$. Children made higher gains in their English/Language Arts skills when a higher proportion of their day was spent in these instructional activities.

It is not surprising that highly organized classrooms would be related to lower instances of behavioral issues. Sound classroom management provides and reinforces clear rules and expectations, important elements for successfully managing anger-related behavioral issues. The other two findings are more surprising and difficult to explain. What is also surprising is that higher CLASS Scores in all domains, but particularly Instructional Support, were not related to children's learning in all measures.

In summary, our analyses of classroom activities and interactions found:

- Children are experiencing emotionally supportive teachers in moderately well organized classrooms.
- The area in which children's experiences are most lacking is in the area of instruction. The CLASS results found EEMG teachers were weakest in the area of Instructional Support, which involves how teachers promote children's thinking and problem solving, use feedback to deepen understanding, and support and facilitate the development of more complex language skills.
- The timed observations found that throughout the day, the most frequently addressed area of the curriculum is language and literacy, but this was only the focus of 18% of the children's time in school.
- Most measures of classroom time and quality were not associated with children's learning and gains in receptive language (PPVT-4), concept development (BSRA-3), or ISTAR-KR except one. When more time was spent in teacher-led instructional activities, children did make higher gains in their language and literacy skills, as measured by the English/Language Arts domain of ISTAR-KR.

5. Summary

This evaluation of the first year of Indiana's Early Education Matching Grant Program yielded several results that may assist local and state decision makers. These results are organized into three sections: Children's Learning, Family Engagement, and Classroom Practices. As you review our results, please remember that the design of our evaluation does not allow us to conclusively determine that all changes in learning and family engagement are due to the EEMG program. This design did not include a control group nor randomly assign children to EEMG classrooms.

5.1 Children's Learning

On average, children in the EEMG Programs made significant gains in areas addressed by all assessment/measurement tools employed in this evaluation. Children made significant gains in:

1. Receptive language learning as measured by the Peabody Picture Vocabulary Test (Version 4);
2. Concept development as measured by the Bracken School Readiness Assessment (Version 3);
3. Social competence as measured by the Social Competence Behavior Evaluation (30-item research version); and
4. Language, literacy, mathematic, and social-emotional skills as reported by teachers on the ISTAR-KR.

At the start of the EEMG program year, 20% to 39% of the children showed delays in their receptive language (PPVT) and concept development (BSRA, respectively. These numbers were nearly halved by the end of the program (11% and 18%, respectively). These changes in children's developmental status were also captured in the ISTAR-KR measures. At the beginning of the program year, 46% children were delayed in two or more English/Language Arts skill areas, 65% were delayed in two or more Mathematics skills areas, and 64% were delayed in two or more Social-Emotional skill areas. By the end of the program year, these numbers were reduced to 20%, 28%, and 42%, respectively.

While children made significant gains in their social-emotional skills areas, a large percentage of children (42%) were missing skills that should have been acquired by all five year-olds. These skills typically involve important social-cognitive skills, including problem solving and self-regulation such as "finds alternate strategies/solutions", "applies creativity to activities", "applies rules to situations", "uses strategies to manage emotions", and "applies strategies to regulate input". It may be important to determine how well teachers are able to assess these skills; and how well their current curricula emphasize children learning these skills.

While there was significant variation among programs and classrooms, no significant differences were found between programs that offered full versus half-day program. Nor were significant differences observed between PTQ Level 3 and Level 4 programs. The lack of significant differences could have important policy implications going forward. As noted earlier, the requirement of Bachelor's degrees for lead teachers may be a mitigating factor. Also, our sample of Level 3 and half-day programs was small. Year 2 EEMG programs will include greater numbers of children served in Level 3 and half-day programs, and provide another opportunity to determine if there are differences in outcomes across these groups.

While it is understood that classroom quality impacts learning, our findings found few significant relationships between our child learning and school readiness measures and our measures of

classroom instruction and quality. Further investigation and evaluation may reveal more significant correlations in the future. Classrooms that scored higher in the Emotional Support domain of the CLASS yielded higher scores on the English/Language Arts domain of the ISTAR-KR. We also found that classrooms that spent proportionally more time in teacher-structured activities showed higher gains in English/Language Arts skills. In addition, classrooms that scored higher in the CLASS Classroom Organization domain were significantly associated with decreases in children's anger/behavior as measured by the Anger subscale of the SCBE-30; however, classrooms that scored higher on the CLASS Emotional Support domain were associated with increases in children's anger as measured the same tool. While it is clear why increased instruction and classroom organization can have positive influences on children's learning and behavior management, it is less clear why strong Emotional Support would be associated with teacher's observations of increased anger-related behavior.

5.2 Family engagement

On average, both families and classroom teachers reported significant increases in family engagement over the program year. Families and classroom teachers reported increased home-school communication and increased engagement by families in their child's classroom, although even end-of-year engagement was not high for classroom engagement. One family-reported measure, families' level of engagement in children's learning at home, did not significantly increase. This was due to the fact that families reported very high levels of engagement at the beginning of the year, and maintained that level of reported home-based engagement throughout the year. Participation in the program did not appear to influence the home-based behaviors. Teachers, on average, tended to rank family engagement lower than did families.

EEMG programs indicated that they engaged in a number of activities to facilitate family engagement. The majority of programs reported that they held 1-2 Family-Teacher conferences over the year, disseminated a monthly newsletter, took advantage of morning drop-offs and afternoon pick-ups to have conversations with families, and offered daily contact sheets to inform families about their child's classroom activities.

Analyses did not find strong relationships between higher levels of family engagement and children's learning. This contradicts what other researchers have found, and we are not able to determine why we did not find a relationship. It may be that implementing evidence-based family engagement practices is relatively new for many early childhood programs, or that participants are overstating the level of engagement that is actually occurring. Recent efforts by the Early Learning Advisory Committee and its Family Engagement Subcommittee may assist programs in carrying out higher quality family engagement practices in the future.

5.3 Classroom quality

We administered two classroom observation measures: the Classroom Assessment Scoring System (CLASS) (Pianta, LaParo & Hamre, 2004) to examine the quality of teacher's interactions with children; and a timed observation tool for taking a time sampling of classroom activities and teacher instruction. For the CLASS, most EEMG teachers fell in the high range in their Emotional Support of children, with an average score of 5.64 out of 7. Most classrooms showed positive classroom climates with a presence of warm, respectful connections; an absence of expressed negativity; an awareness of and responsiveness to children's needs; and an emphasis on children's interests and growth in responsibility (see Figure 16).

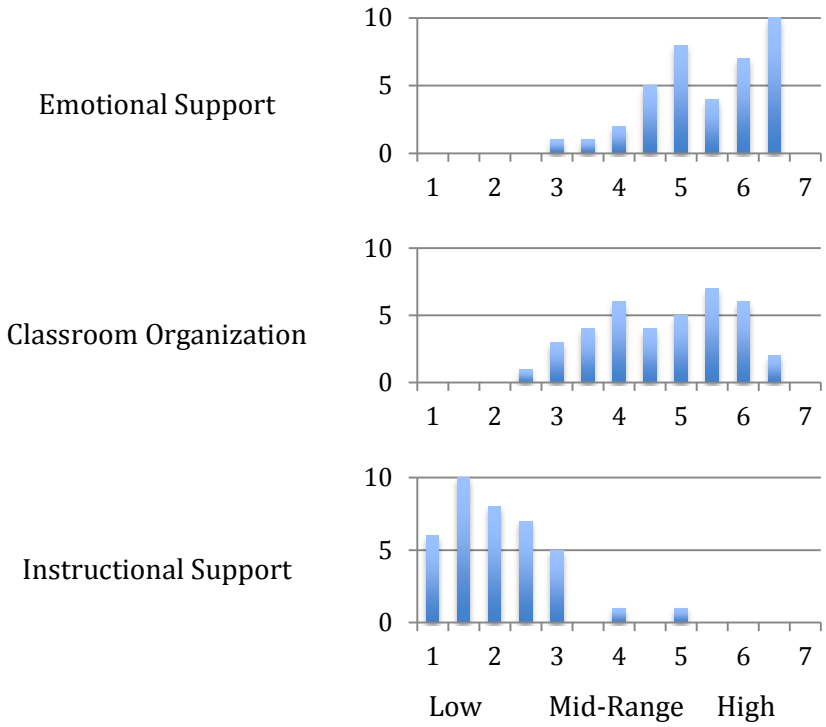

Figure 16. Average CLASS scores across EEMG classrooms

EEMG classroom teachers were more mixed in terms of their Classroom Organization skills, with many teachers falling in both the mid and high ranges (average score of 4.97). While many teachers showed strength in behavior management and productivity, several were not as strong in the dimension of Instructional Learning Formats. This meant that the teachers' skills in effectively facilitating lessons, fostering student interest and having clear learning objectives was not observed as often.

As is true for most preschool programs, EEMG classrooms teachers generally fell in the Low range of CLASS Scores for the Instructional Support domain, with an average score of 2.32. Classroom teacher interactions typically failed to ask questions and engage children in rich conversations that asked children to think deeply about ideas and connect them with what they already know and to their own experiences.

Our second measure, a timed observation of classroom activities and instruction, found that children were exposed to a wide range of activities, but spent the majority of their time in whole group learning and free choice activities. Our data was closely aligned with national and other state data. Teacher interactions that had an intentional instructional emphasis were observed for the majority (51%) of instances, with teachers focusing their instruction on language and literacy skills a third of the time. We also found that more instruction occurred (90% of observations) during teacher-lead activities (whole group and small group work times) than other activities (e.g., free choice, meal times).